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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/078,108	02/20/2002	Shinya Arase	111993	4725
25944	7590	11/04/2004		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320				
EXAMINER PEZZUTO, HELEN LEE				
ART UNIT 1713				
PAPER NUMBER				

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/078,108

Applicant(s)

ARASE ET AL.

Examiner

Helen L. Pezzuto

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/20/02.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Applicant's amendment to claims 6-9 filed in the preliminary amendment on 2/20/02 is acknowledged. Currently, claims 1-10 are pending in this application.

Regarding amended claim 6, the examiner suggests applicant to insert "to" after "according", upon response to this office action.

***Claim Rejections - 35 USC § 102/103***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do

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not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3, and 8 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wang et al. (US-421).

US 6,503,421 to Wang et al. discloses a terpolymer material having enhanced optical properties. Prior art terpolymer comprises, inter alia, a N-halogenated phenyl maleimide, which embraces the instant maleimide as defined in formula (1), wherein R<sup>1</sup> is benzene derivative (col. 4, lines 1-32). Prior art teaches using 10-90 wt% of said maleimide in producing the terpolymer, which would encompass the recited x value (col. 5, lines 20-23). The

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reference further discloses spin coating the resulting polymer onto suitable substrate, follow by postbaking in photolithographic process for forming an optical device (col. 6, lines 59-65; col. 7, lines 57-64). The examiner is of the position that photolithography falls within the scope of the instant lithography. Furthermore, the instant semiconductor device recited in the preamble can also be an optical device. In any event, an intended use clause found in the preamble is not afforded the effect of a distinguishing limitation, unless the body of the claim set forth structure, which refers to the environment, or use in the preamble. Finally, prior art does not expressly exemplify the weight average molecular weight expressed in claim 3. The examiner takes the position that the property is considered inherent in prior art polymer because the utility as a coating is clearly contemplated by patentees. The burden is placed upon the applicant to provide clear evidence that the respective polymers do in fact differ. In any event, it would have been obvious to one skilled in the coating art to determine the optimum molecular weight under prior art general conditions of forming a coating composition.

***Claim Rejections - 35 USC § 103***

5. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Padmanaban et al. (US-168).

US 6,803,168 to Padmanaban et al. discloses a bottom anti-reflective coating composition, having high absorption to exposed radiation at 100-450nm. Prior art anti-reflective polymer comprises (meth)acrylic acid esters containing blocked isocyanate or isothiocyanate moieties (i.e. m, r units), as well as n, o, p, and q comonomer units, as shown in formulas V, II', II". Prior art polymers have molecular weight range from 500 to 5,000,00 Daltons which clearly encompass the instant range expressed in claim 3 (col. 10, lines 44-56). Maleimides defined within the structure of q unit are taught to be suitable comonomer for increasing radiation absorption (col. 6, lines 57-61). The preferred mole fraction of maleimide units in the polymer is 0.05 to 0.50 (col. 13, lines 10-11), which abuts the lower 51 mol% expressed in claim 5. The reference does, however, specifically teaches the various parameters one skilled in the art should considered in the determination of the optimum mole ratio of the comonomers (col. 10, line 57 to col. 11, line 15). In light of the sufficient specificity disclosed, the examiner takes the position that

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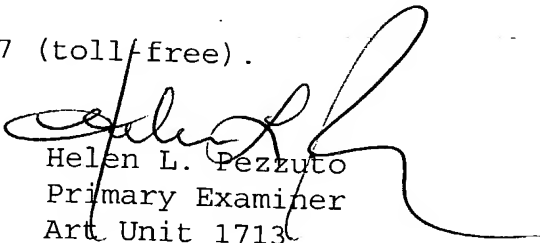
prior art is not limited to the preferred mole fraction embodiments. It would have been obvious to one skilled in the art to determine the optimum mol% of comonomer under the guidelines set forth in the reference, absent a showing of criticality for the claimed range. The record is not clear at this point because applicant appears to use maleimides below 0.5 mol in the working examples, although recited a higher range in claim 5. Furthermore, prior art discloses employing (meth)acrylate comonomer as defined by n comonomer units, so as to impart solubility to the polymer (col. 6, lines 43-45). The presently recited mol% (meth)acrylate structural unit (B) falls within patentees' preferred range (col. 13, lines 8-9). Prior art further suggest using crosslinkers as suitable additives in the composition so as to improve the film forming properties (col. 11, lines 27-28). The presently claimed method of forming the bottom antic-reflective coating expressed in claims 8-10 is exemplified. Accordingly, in light of the specific teachings in forming a bottom anti-reflective coating, it would have been obvious and fully within the purview of one skilled in the art to select maleimide and (meth)acrylate as suitable monomers, and their relative proportions as applicant, motivated by the reasonable

expectation of success in forming an anti-reflective coating composition as taught.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen L. Pezzuto whose telephone number is (571) 272-1108. The examiner can normally be reached on 8 AM to 4 PM, Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Helen L. Pezzuto  
Primary Examiner  
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